The
VETERINARY RECORD

Founded by William Hunting, F.R.C.V.S., in 1888

7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1. MUSEUM 6541

No. 50 DECEMBER 15th, 1956 Vol. 68

Registered for Transmission as a Newspaper *Price 2s. post free*

Some Aspects of Renal Disease—with Special Reference to Diagnosis*—Part I

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Introduction

A CONSIDERABLE amount is known and published on renal diseases of small animals, but less has been recorded about those of the larger. It may be that in the domestic large animal renal disease is relatively uncommon except as a secondary complication in other more specific diseases. Moreover, owing to the comparatively short lives of animals designed for food, there may be insufficient time for establishment of chronic renal disease, which is so frequent in the dog.

There are few reports on the subject in veterinary literature, apart from those on dogs, and certain specific diseases such as pyelonephritis in cattle. In human medicine, on the other hand, an extensive bibliography on urogenital diseases exists; in the past, veterinary clinicians have had to depend on medical literature for information on, at any rate, some aspects of such conditions as nephritis. Urology, as such, is not as yet a specialised branch of veterinary medicine.

In the past the scarcity of information on renal disease in animals may have arisen from:—

(1) Lack of knowledge of incidence of the disease.

(2) Lack of easily available laboratory diagnosis and a hesitancy on the part of busy clinicians to use simplified laboratory techniques.

(3) Lack of specific therapeutics.

(4) Lack of statistical evidence on abnormalities or disease in animals killed at slaughter-houses and knacker-yards.

The introduction of chemotherapeutics and antibiotics had an important effect on the treatment of renal disease. Further, there are now more facilities for such investigations as urine and blood analysis and for the diagnostic use of X-rays. It is thus apparent that the clinician is in a strong position to reduce the occurrence of renal dysfunctions; nevertheless every opportunity should be taken to add to the body of information on urological disease, whether from laboratory, abattoir, or clinical experience, so that urology as a veterinary specialisation may become a reality.

In this paper it is proposed: to mention some aids to diagnosis; enumerate a few of the recorded types of disease in large animals; devote a short space to the less usual aspects of renal disorder in small animals, and to discuss some antibiotics used in the treatment of renal disease.

Some Aids to Diagnosis

A variety of symptoms arise from renal impairment. They may be such that at times the presence of other diseases may be suspected, and it may be necessary to convince the owner of an animal that its disease in fact originates from the kidneys.

This was particularly true in the past, when some cases of canine nephritis and uraemia had been treated as "acidity," "gastritis," or chills (Uvarov, 1936). Whatever one's clinical experience of renal diseases, it is essential to supplement it by an examination of urine, blood, or both, or sometimes to resort to the use of X-rays.

A tentative diagnosis and initiation of treatment is clearly always necessary, pending confirmation of diagnosis.

Clinical Investigation

Boddie (1950) divides clinical signs of urinary disease into three categories:—

(a) Those associated with micturition with or without pain, alteration in posture, and frequency; this is well illustrated in sabulous bladder in male cats.

* Presented to the Sussex Veterinary Association, May 4th, 1955.

(b) Signs that can be investigated by physical examination, *e.g.* calculi in the bladder, and some forms of neoplasia (*i.e.* palpable nephroma).

(c) Signs that are apart from the renal system, *i.e.* osteoporosis, or rubber jaw in dogs, respiratory or " asthma-like " condition, which is a form of uraemia; some cases of fits of uraemic origin, or pharyngitis associated with nephritis.

The first two types may easily be observed and interpreted, but the symptoms unassociated with typical renal disease require urine analysis. The technique is very simple and has been fully described by Boddie (1935), Henderson (1938), Uvarov & King (1935), Uvarov (1944), and others: a brief résumé here may be appropriate.

The apparatus consists of a few test-tubes, pipette, funnel, hydrometer, reagents, and litmus paper.

Urine Analysis

The tests should include:—

(a) Colour.—This is noted and compared with the standard of normal urine in the particular animal. In the dog it can be described as pale yellow or straw yellow (Uvarov, 1944). The colour varies with the concentration of the urine and the amount of pigment present in it; it has some clinical significance, particularly when taken in conjunction with *specific gravity*. In the dog, colour changes may be as follows:—

(1) Pale and watery—in chronic nephritis, in some cases of anaemia, in cardiac diseases, and in some stages of diabetes.

(2) Light yellow—fluorescent—in early stages of diabetes.

(3) Highly coloured—in febrile conditions, hepatic and digestive disorders, pancreatic disease.

(4) Reddish brown—in haemorrhages of the urogenital tract.

Reaction

This can be tested either with litmus paper, which for most clinical purposes is sufficiently accurate, or by the use of indicators to determine the *p*H. Normal reactions are:—

Carnivores, Acid (*p*H 6.0—7.0).

Herbivores, Alkaline (*p*H 7.5—8.0) or amphoteric.

Omnivorous animals (*e.g.* pig), depending on diet.

Changes in reaction occur in various diseases and during the time between collection and test. In the dog and cat, the acid reaction is generally unchanged in nephritis, nephrolithiasis, obstructive urethritis (in cats secondary cystitis may be present and the urine becomes alkaline), prostatitis in dogs. In cystitis, the reaction is nearly always alkaline in all species.

In herbivores, urine can become acid as result of fever, inappetence, or ketosis.

Specific Gravity

This depends upon the concentration of solids in the urine and is a gauge of the concentrating and diluting capacity of the kidney. Many variations occur, depending on fluid intake and the state of disease. The following are considered normal—according to Boddie (1944) and Craige (1940).

	Range	*Average*
Horse ...	1·020–1·050	1·035
Cattle ...	1·005–1·040	1·015
Hogs ...	1·010–1·025	1·015
Pigs ...	1·005–1·025	1·020
Cats ...	1·020–1·040	1·030
Dogs ...	1·015–1·045	1·020
Sheep ...	1·006–1·015	1·012

In my personal experience of urine analysis for many hundreds of dogs, the normal appears to be 1.025—1.030.

The ideal quantity for estimation of specific gravity is 2 oz.; if this is not available, a smaller sample may be diluted with one or two or three times its volume, the last two figures of the observed reading being multiplied by the number of dilutions, *e.g.* urine diluted twice, observed reading 1.010—specific gravity 1.020. This is not a very accurate method, but I have found it to be better than none.

An appreciable change in specific gravity occurs in various diseases. Broadly speaking, an increase is observed in acute nephritis, diabetes mellitus, fevers, most cases of cystitis, and some cases of genital disease. A decrease is seen in chronic nephritis in dogs, polyuria, *i.e.* diabetes insipidus, and the last stages of diabetes mellitus, when an accompanying nephrosis is sometimes present.

Albumen

The presence of albumen in urine is of great importance, but its real significance can only be judged in relation to the results of other tests. I think it misleading to base diagnosis on the result of a test for albumen alone. It is considered more correct to speak of " Proteinuria " (rather than albuminuria), which is of two kinds, *viz.*—

(a) Physiological proteinuria, which is transient and can occur without disease, *e.g.* from fatigue such as in racing greyhounds, in those receiving excess protein, and from exposure to intense cold.

(b) Pathological proteinuria—probably the most constant sign of renal disease, but occurring also without serious change in the kidney, *e.g.* it may be found associated with high fevers in the absence of renal disease. A microscopical examination of urine is advisable in such circumstances, to ascertain the source of the deposit—*e.g.* whether of epithelial origin or not.

Pathological proteinuria should be considered as:—

Renal—originating from primary lesions in the urinary system, such as diseases of the kidney, nephritis, neoplasia, nephrolithiasis, diseases of the bladder, urethra, and prostrate gland, or

Pre-renal—arising in connexion with other conditions, *e.g.* chemical poisoning, fevers, so-called " febrile albuminuria " in distemper, other diseases such as that of the liver, heart, or uterus. In the latter, protein usually arises from pus and is, strictly speaking, a urinary contaminant.

Craige (1940) summarises the position as follows:—

TYPES OF ALBUMINURIA (CRAIGE, 1940)

Feature	Form of albuminuria
Gross appearance :	
(*a*) Clear or slightly cloudy ...	"Renal"
(*b*) Turbid, milky, much precipitate, sometimes flaky	"Accidental"
Microscopic findings :	
(*a*) Few extra-renal cells	"Renal"
(*b*) Numerous extra-renal epithelial cells, leucocytes, much mucus ...	"Accidental"
Albumin :	
(*a*) Large amount (?)	"Renal"
(*b*) Small amount (?)	"Accidental"

Bile pigment and bile salts

Tests for these substances are part of a general analysis, whether or not liver damage is suspected. The presence of bile constituents indicates disease that may be in the liver, the alimentary canal, or even the blood-stream.

Sugar

The tests employed for sugar detection are not specific for sugar and, strictly speaking, only indicate the presence of a reducing substance. On some occasions other substances may give a slightly positive reaction with Fehling's solutions, *e.g.* salicyluric acid after the administration of salicylates. Chemical confirmation may be required to ascertain the presence of glucose. Sometimes renal glycosuria occurs, indicating a low renal threshold for sugar. Such cases can be encountered in dogs that have had large quantities of glucose, or even chocolate or sweet puddings. On establishing glycosuria, a test for ketone bodies must be included. Lactating animals will excrete lactose, which is not of diagnostic significance.

Microscopic examination of urine deposit

Only a fresh specimen should be examined, either by allowing it to stand for two to four hours or after centrifugalisation. A deposit may consist of:—

(a) Cells, such as red and white blood corpuscles, epithelium, and casts (from damaged renal tissue).

(b) Salt deposits, which will vary with the reaction of urine; uric acid, urates, cystine crystals found in acid urine, and phosphates and carbonates in alkaline urine.

(c) Infecting micro-organisms.

Craige (1940) described the following deposits:—

Microscopical examination of urine

(*See Figs. 1 and 2 opposite*)

Crystalline deposit

(*Figs. 3 and 4, overleaf, are illustrative*)

FIG. 1.—Casts (after Rieder & Delapine): 1. Hyaline: clear, transparent cast, sometimes overlooked when there is too much light illuminating the field. 2. Cellular (epithelial): desquamated cells from the renal tubules fixed in the coagulum. 3. Blood (erythrocytic): blood corpuscles in the coagulum; leucocytes are also found in casts. 4. Cylindroid: sometimes mistaken for casts; these and 5. Mucous threads are found normally.

FIG. 2.—Cells (after Rieder & Delapine): 1. Erythrocytes. 2. Leucocytes. 3. Vaginal epithelial cells. 4. Spermatozoa. 5. Epithelia from the bladder. 6. Renal epithelial cells. 7. Epithelial cells from the neck of the bladder.

Additional tests

(a) Ketone bodies arising from faulty metabolism.

(b) Indican, an end product of intestinal putrefaction of nitrogenous substances, found in alimentary stasis.

FIG. 3.—Crystals (after Rieder & Delapine) : 1. Magnesium ammonium phosphate (triple phosphate)—alkaline urine. 2. Amorphous phosphate—alkaline urine. 3. Ammonium urate—acid urine. 4. Uric acid—acid urine. 5. Calcium oxalate—acid urine. 6. Calcium sulphate—alkaline.

(c) Haemoglobin (a spectroscope is of help).

(d) Urea concentration test.

The tests mentioned are very quickly carried out and can give useful information; if routine re-tests are carried out subsequently, the future health of the patient can be safeguarded. The clinical picture alters, as can be seen from the following tables.

FIG. 4.—Urine sediment from a case of specific pyelonephritis in a cow (drawn approximately to scale at 300 diameters—4 mm. objective) : Numerous erythrocytes, several leucocytes, a single large epithelial cell (vaginal), several small epithelial cells (renal and pelvic), a few casts, and a cylindroid make up the picture. Actually, all these objects were not observed at the same time, but were found in the same drop of urine in different fields. Erythrocytes were even more numerous than this picture suggests. The diagnosis was later confirmed by isolating the *Corynebacterium renale* in culture from the specimen.

TABLE I

ACUTE NEPHRITIS

Patient : Two-year-old Cocker Spaniel (Male)

	1st day	4th day	15th day	20th day	27th day	30th day	58th day
Colour ...	Dark	Pale	Pale	Pale	Normal	Normal	
Reaction ...	Acid	Acid	Acid	Acid	Acid	Acid	
Specific gravity	1·035	1·020	1·012	1·015	1·015	1·015	Normal in all respects
Albumen ...	+	++	+	±	±	–	
Bile	–	–	–	–	–	–	
Sugar ...	–	–	–	–	–	–	
Deposit ...	Slight casts and few R.B.C.s	More profuse	Few casts	Slight	–	–	

TABLE II

SUBACUTE NEPHRITIS

Patient : Twelve-year-old Cross-bred Terrier (Male)

	1st day	10th day	30th day	60th day	80th day
Colour	Normal	Normal	Normal	Pale	Normal
Reaction	Acid	Acid	Acid	Acid	Acid
Specific gravity	1·020	1·015	1·014	1·018	1·020
Albumen	+	+	±	–	±
Bile	–	–	–	–	–
Sugar	–	–	–	–	–
Deposit	Epithelial casts, few R.B.C.s	Same	Slight		

TABLE III

Patient : Ten-year-old Terrier (Male)

	1st day	4th week	5th week	6th week	6 weeks and 2 days
Colour	Watery	Watery	Watery	Watery	Watery
Reaction	Acid	Acid	Acid	Acid	Acid
Specific gravity	1·005	1·005	1·005	1·000	1·000
Albumen	+	++	+	±	–
Bile	–	–	–	–	–
Sugar	–	–	–	–	–
Deposits	Few casts	–	–	–	–

Patient died in complete uraemia.

TABLE IV
DIABETIC TYPE

Colour ...	Light yellow	Bile (*a*) Pigment	+
Reaction ...	Acid	(*b*) Salts	−
Specific gravity	1·045	Sugar ...	++
Albumen ...	++	Acetone ...	+
		Deposit ...	Few casts

The lesions on the feet persisted for nearly a year.

TABLE Va
URINE ANALYSIS OVER A PERIOD OF YEARS
Patient : Three-year-old Cocker Spaniel (Male)

	1935	Four months later	Three months later	1938	1944
Colour ...	Pale	Pale	Pale	Pale	Patient still well
Reaction ...	Acid	Acid	Acid	Acid	Occasional uraemic fits
Specific gravity	1·020	1·020	1·025	1·025	
Albumen ...	++	+	±	±	
Bile ...	−				
Sugar ...	−				
Deposits ...	Slight				

TABLE Vb
Patient : Eight-year-old Cross-bred Terrier (Male)

	1936	1937	1943	
Colour ...	Normal	Normal	Pale	Destroyed in
Reaction ...	Acid	Acid	Acid	complete
Specific gravity	1·035	1·025	1·010	uraemia.
Albumen ...	+½	±	++	*Post-mortem*
Bile	Nil	−	−	chronic
Sugar ...	Nil	−	−	nephritis
Deposit ...	Epithelial casts	Slight	Few casts	

Tables III and V illustrate the type of case in which urea test is an advantage.

The above cases were selected at random. They occurred before the introduction of antibiotics and so relied only on symptomatic treatment, including the use of dietary changes. They not only give a history of the patient's progress, but also call attention to the *duration of disease*, the power of resolution of lesions, and the subsequent recovery or otherwise.

By using this simple method of urine analysis the clinician will generally obtain sufficient information for diagnosis and initial treatment.

Radiology

There will, however, be a proportion of patients that may require further examination by radiography. The use of X-rays for examining the renal system is comparatively new and has up to now been limited to small animals. The work of Schnelle (1950), Bishop (1953), Drury, Dyce & Merlen (1953), Parker (1954), Hickman (1954), and others has given a good indication of the potentiality of urography in small-animal practice. Most of the urinary organs are situated deep in the abdomen and are not well visualised by ordinary X-rays. It has been found that to outline these it is necessary to use a radio-opaque substance or "contrast medium": plain radiography is mainly of use for detecting opaque calculi.

Contrast agents

Several such substances are now available, most of them owing their radio-opacity to the presence of firmly combined iodine. In this country the most commonly used are diodone and iodoxyl; these are manufactured under a variety of names and are made available in different strengths of from 35 to 70 per cent. w/v.

Contrast media can be introduced into the urinary tract by either of two routes:—

Direct instillation of the material into the organ to be visualised—*i.e.* ascending *retrograde pyelography*. This has a limited application and is only at times used for visualising the bladder in the bitch or the cat. (8 per cent. solution of sodium iodine can also be used for this method.)

Intravenous pyelography, which relies on the excretion of contrast media *via* the kidney. This method is simple and relies upon the normal function of the kidney; its greatest use is for detecting tumours, malformation, displacements, and some calculi.

Some preparation of the patient is necessary before using any of these agents. Food and water should be withheld for 6 to 12 hours before use of the contrast agent, and in some instances an enema is advisable; anaesthesia is preferred, but is not always absolutely essential. The dose of contrast agent will vary with its concentration and with the size and weight of the animal.

The following have been used: 5 to 20 c.c. of 50 to 70 per cent. w/v of solutions of diodone or iodoxyl (Hickman, 1954), injected intravenously and slowly; exposures taken, with the dog in the dorso-ventral position, at 5- 10- and 20-minute intervals. With standard films and KV 80, 65, or 70, exposure time of 0.5 or 0.3 seconds are recommended for use in radiography of cats and dogs.

Drury (1953) *et al.* have used 15 c.c. of 50 per cent. w/v solutions injected over half a minute in greyhounds weighing 65 lb., taking exposures at 3, 6, 10, 15 minutes. Parker (1954) recorded an interesting case of a papilloma in the bladder of an old terrier dog, which was visualised by the use of 12 c.c. of a diodone solution of 35 per cent. w/v. The first picture was taken at seven minutes after the initial injection had shown the pelvis of each kidney and first inch or two of the ureters. Subsequent films taken at 20 to 25 minutes (dorsal position) showed the outline of bladder and complete track of ureters. In the lateral position a tumour almost completely filling the bladder could be diagnosed.

Some workers recommend the use of a bandage or compression pad to prevent a too rapid excretion of contrast medium into the bladder. No untoward effects have so far been encountered by the use of such agents, but certain points should be considered. If renal efficiency is low, crisis can be precipitated

by the use of some media. In severely impaired kidney the detail may not be clearly visible during the examination. The interval at which exposures are taken may vary. A high concentration of the substance must be present in the organ being visualised. Wide variation can exist in the normal animal.

Adequate preparation and the full history of each patient must be considered before undertaking this technique.

The contrast media now available in this country produce good results and are to be recommended for use in renal radiography for specialised cases.

Some American workers have used air as a contrast medium for outlining the bladder; tumours and renal calculi have been diagnosed as the result of this technique. The amount of air recommended has been 20 c.c. for cats and 200 c.c. for dogs—after emptying the bladder.

Some Consideration of Renal Disease in Large Animals

In general, primary renal disease in large animals appears to be relatively infrequent. Some of the cases of kidney disease in this group of animals are associated with other diseases, such as tuberculosis of cattle, enterotoxaemia or pulpy kidney disease of sheep, azoturia and joint-ill of horses. There are, however, two exceptions to the first statement in that bovine pyelonephritis and bovine haematuria are both well-recognised conditions and have received some considerable attention.

Bovine pyelonephritis

This disease has been known for over 100 years and valuable work has been done on the causal organism, the resultant lesions, symptoms, and treatment (Enderlen, 1819; Weitz, 1947; Beck, DeMott & Boucher, 1945; Lovell & Cotchin, 1947; Morse, 1950; Lovell, 1951).

The cause of this specific infection, producing cystitis and pyelonephritis, is *Corynebacterium renale*; Morse (1950) has isolated this organism from vaginal and penile mucosa of normal animals. In 16 herds of 523 animals the organism was isolated from the urine of 17.6 per cent. In herds that had clinical cases during the two years of study the median carrier rate was 6 to 7 per cent. It is interesting to note that two bacteriologically positive cases showed no clinical symptoms until four months later. Periodic examination of 100 cows showed that *C. renale* was being conveyed from carrier cows to others. From such evidence this disease should be considered contagious, and carriers of the disease may be expected in herds known to have had this infection. Symptoms are well-known; the disease is frequently associated with parturition and may be a sequel to retained foetal membranes, metritis, or vaginitis. It is assumed that nephritis in such instances is secondary to cystitis (Lovell, 1951).

C. renale is sensitive to penicillin, although this sensitivity may vary from strain to strain. Lovell & Cotchin (1947) found that sensitivity to penicillin *in vitro* varied from 0.1 to 0.0001 units per c.c. with 12 strains; Beck, DeMott and Boucher have found it to be 0.025 units per c.c. It appears that most strains are sensitive to this antibiotic at 0.02 units per c.c. (Welch, 1954).

Several workers (Beck, 1945; Fox, 1947; Kiesal *et al.*, 1947; Arthur, 1949) have reported successful treatment of this disease using the following doses of penicillin: 1,000,000 to 2,000,000 units daily until 8,000,000 to 10,000,000 units had been administered. Arthur (1949) treated 11 cases with the following results:—

Five remained normal for up to 22 months.

Three showed temporary improvement but relapsed later.

Three were not influenced by treatment, and *post-mortem* examination proved them to be advanced cases.

Recently, clinicians have used a minimum of 5,000,000 units daily.

In severely affected animals that showed clinical recovery the clinician may consider disposal of the animal once general body condition has been restored. There is a further suggestion now that in some deaths from ketosis mortality has not been associated with ketosis itself so much as from subclinical, or possibly recovered, cases of pyelonephritis (Easterbrook *et al.*, 1955).

Chronic bovine haematuria

This condition is of unknown aetiology and appears to be endemic in some parts (Petrenko, 1951). So far no infective organisms have been discovered in association with it. Cystitis and wart-like lesions appear (Lovell, 1951), and, according to Petrenko, chronic nephritis can also be present. Petrenko classifies haematuria into two categories:—

Microhaematuria, in which only few red blood corpuscles may be present and are only identified on microscopical examination.

Clinical haematuria.

In one locality he examined 291 animals, out of these 55.3 per cent. had microhaematuria, but only 17.4 per cent. were clinical haematuria. In another herd, out of 134 animals 44 per cent. had microhaematuria, but only 11 per cent. were clinical cases. It is evident that further studies of this disease are required. Leptospiral infection, particularly in calves, has also been encountered recently.

Urinary calculi and tumours have been recorded in sheep, horses, and cattle (M'Fadyean, 1931; Kendrick, 1950; Prier, Thomas & Bramlett, 1952; Sinha, 1952; Coles, 1953; Swingle, 1953; Hill, 1950; Plummer, 1951). Focal interstitial nephritis has been noted by Hadlow (1955). Studies of the causes of urinary calculi in cattle and sheep have produced new suggestions for their prevention (Puntriano, 1953, 1954, 1955).

Of nephritis in general, M'Fadyean stated in 1929 that " relative frequency of different recognised forms or types of nephritis in domestic animals requires further study particularly with regard to the occurrence of chronic forms in the horse, ox, and pig."

This statement is still true, and M'Fadyean's inability to find chronic interstitial nephritis in horses, pigs, or herbivora has probably been shared by all clinicians. Neither was he able to show the existence of glomerulonephritis in any animal. Marcone (1896-1900) recorded that about one case of nephritis was found among 10,000 army horses. Interstitial nephritis in swine has recently been reported from Viborg, where out of 100,000 pigs killed, the disease was found in 18 animals (Larsen & Tardering, 1954).

The above are some of the conditions most frequently reported in the literature, but much more clinical recording of them is still required.

Small Animals

Diseases of the renal system in the dog, particularly of the kidney, are perhaps the commonest ailments of that species. In the past some confusion has existed over the classification of nephritis; owing to the scarcity of information in the veterinary literature, human references on the subject had been used, with the result that some of the terminology of kidney disease in man has been transferred to conditions found in the dog. The position has since been clarified, and it is now well-known that the most common form of kidney disease in the dog is interstitial nephritis—(acute, subacute, or chronic); that glomerulonephritis is very rare, and that other lesions such as nephroses, pyelonephritis, hydronephrosis, neoplasia, abscesses, and infarctions or renal parasitism are also only encountered on rare occasions.

Urolithiasis is excluded from the above group and forms a separate entity.

The work of M'Fadyean (1929) on nephritis in animals forms one of the foundations of the subject and his request for further study of the matter has been well met. Various aspects of kidney disease have been studied and the rôle of infection by *Leptospira* is now well recognised (Hare, 1934; Wright, 1934; Boddie, 1935, 1944, 1950; Uvarov, 1936; Bloom, 1944; McIntyre & Stuart, 1949; Bloom & Weipers, 1951; Joshua, 1949; Platt, 1951, and others). The incidence of canine nephritis has been stated to be one of the commonest causes of death in adult dogs (Wright, 1934); in the experience of Bloom (1954) some degree of interstitial nephritis was found in 55 per cent. of dogs of all ages on routine *post mortem* and in rather more than 80 per cent. of dogs over eight years of age. Moreover, interstitial nephritis was responsible for 89 per cent. of all cases of uraemia, which is also a common cause of death among old dogs.

Despite all the work on kidney disease, some aspects still present interesting points for observation and require further attention. In this group, uraemia, " rubber-jaw," cystinuria, calculi, and tumours all present symptoms that are, unfortunately, only brought to the notice of clinicians when the symptoms are well established and often too far advanced for their course to be affected.

Uraemia

This results from renal insufficiency and is characterised by retention of nitrogenous constituents in the blood. Urea and several waste products accumulate in the blood because the kidney is unable to excrete them; urea by itself is not very toxic at the levels in which it is found in uraemia. (Phenolic compounds are mostly responsible for the toxicity.) The state of uraemia is one of toxaemia. To measure its degree, blood urea tests should be carried out; they provide more information than ordinary urine analyses. The procedure is, however, more time-consuming, but there is, so far, no quick substitute. The exact mechanism by which uraemia is produced is still unknown.

Three forms of uraemia, resulting from interstitial nephritis, are now recognised (Boddie, 1950):—

(1) Gastro-intestinal.

(2) Respiratory—characterised by hissing breathing and respiratory distress, pharyngitis, or cough.

(3) Cerebral—sometimes presence of coma, or fits, or in the early stages, apathy, listlessness, nervous instability and change of temperament (Uvarov, 1944). Many different symptoms may be found within the groups of uraemia. These may be *extrarenal, i.e.* pruritus, eczema, anaemia (from depression of bone marrow), a variety of digestive disturbances; there may be fatty necrosis in the pancreas and degenerative changes in the liver and spleen (Bloom, 1954), varying from cloudy swelling to necrosis; occasional myocarditis, arteritis; active hyperaemia of the adrenal glands. It will be realised, therefore, that presence of any of the above mentioned symptoms, removed though they may seem from renal dysfunction, points to the need for urine analysis.

" *Rubber-jaw* " (renal rickets—osteodystrophia fibrosa)

Cases of rubber-jaw are generally presented to clinicians without the animal's owner being aware of any symptoms involving the renal system. Hare (1934) was the first to describe this condition, of osteoporosis in association with nephritis, in 11 dogs —10 males and one female; Uvarov (1944) reported it in six dogs, and Hogg (1948) described the condition in its clinical aspect. Platt (1951) investigated the skeletal system in seven adult dogs affected with " rubber-jaw " during various stages of nephritis and established that osteodystrophia fibrosa is the lesion associated with " rubber-jaw "; similar lesions may be present throughout most of the skeleton as well as the head bones. It appears that such bone changes can be found in many cases of chronic nephritis and that " rubber-jaw " is only apparent when these changes are extremely severe. Liegeois & Derivaux (1946) have described an increase in weight of the parathyroid glands in dogs affected with chronic nephritis.

Hyperplasia of the parathyroids has also been shown to exist (Platt, 1951b; Leonard, Rickard & McEntee, 1953), in " rubber-jaw " syndrome and is considered to be secondary to renal insufficiency of long standing.

Such cases are sometimes brought in for suspected dental decay; on no account should a clinician undertake any form of anaesthesia or extraction of teeth without full investigation.

Urinary calculi

Urolithiasis is fairly common and may originate in the bladder or, less commonly, in the kidneys. Urethral obstruction in dogs, and particularly in cats, is frequently encountered. Some accounts indicate the incidence of calculi. Krabbe (1949) reported that during 15 years, 11,291 dogs and 1,024 cats were examined at the Veterinary College in Copenhagen, and that 72 dogs, *i.e.* 0.6 per cent., had urolithiasis; nine of these had calculi in the kidneys, which in six of them were only found at *post mortem*. Pyelitis and pyelonephritis were present. In cats the incidence was about 1 per cent. of sediment formation associated with urinary infection. White (1944) made a study of 103 cases of urinary calculi, in which 65 were vesical, 31 urethral, and only one renal; the remaining six had calculi in more than part of the tract. Uvarov (1944), in a group of 157 dogs, recorded nephrolithiasis in two dogs; urethral calculi in four dogs; cystitic calculi in three dogs and one bitch. Lindsay & Bruce (1955) removed a large calculus from the pelvis of a kidney of a Cocker Spaniel, which made an uneventful recovery.

Pollock (1955) describes cystinuria in the dog with presence of calculi, and attention is drawn to the fact that cystinuria is more prevalent in dogs than was formerly noticed. This opinion I share, and several other reports are available in support of it. White (1944) found 17 cystine stones out of 31 cases of urethral calculi and suggested that this may be the most common type of stone requiring urethrotomy in the dog. Predisposition to calculus formation in some strains of Irish Terriers and Dalmatians is also known (McKenna, 1949; Keeler, 1940; Freiermuth, 1944), and more recently Young (1955) has shown that uric excretion in Dalmatians is carried out at the " exact level of glomerular filtration " and that there is no subsequent re-absorption of filtrate. This kidney anomaly is believed to be genetic. Schnelle (1950) draws attention to a tendency to uric acid formation in Dalmatians. Brodey (1955) reported 52 cases of calculi in dogs—27 in dogs and 25 in bitches. Medway & Bishop (1955) reported diagnosis of three cases of bilateral kidney calculi (with the aid of radiography). In a good many of the above instances kidney calculi were discovered on *post mortem*, or during life, apparently with no pain being shown by the animals. In two cases within my own experience very severe pain was suffered, at times resembling symptoms of renal colic. Radiology was not allowed by the owner and only symptomatic treatment was carried out. On *post-mortem* examination calculi were found in both kidneys.

With the present use of antibiotics, and the extensive practice of surgery in small animals, the seriousness of calculi in animals is reduced. The use of anti-spasmodics and hyaluronidase and the prevention of calculus formation require further investigation. Radiography is of particular value in detecting calculi, although there has been some difference of opinion on the ability to visualise cystine stone; Morrison (1940) was able to show 69 out of 75 cases in man; Sjöberg & Nilsson (1940) were also able to show stones in the urethra of a dog. In one instance within my own experience cystine stones were not shown in an Irish Terrier on repeated X-ray examination, though large numbers were found during urethrotomy. The compositions of calculi vary: White (1944) found that phosphates are the commonest of bladder calculi and are themselves secondary to cystitis; Brodey (1955) found phosphate stones in 25 bitches out of 52 cases. Oxalates are fairly common. Uric acid and urates are most frequently encountered in Dalmatians, although I have also seen them in a Scottish Terrier, in Dachshunds (two), and in a Bulldog. In investigating urolithiasis the reaction of the urine should be carefully considered: by changing the reaction it is possible to produce dissolution of cystine calculi and possibly prevent their further development, since cystine is soluble in alkaline solutions. This provides yet another instance of the importance of urine analysis in renal cases.

Renal Lesions in Association with Other Diseases

Judging by the number of old dogs that suffer from some degree of kidney disease, the organ in that species appears to be subject to undue stress even under apparently normal conditions. In disease the stress becomes more pronounced, even apart from leptospirosis, which is established to be one of the commonest causes of infection (Bloom, 1939, 1941; McIntyre & Stuart, 1948; Joshua, 1947; Weipers, 1951). Some form of renal impairment is encountered in a number of other diseases. The chief of these are:—

Distemper—in which febrile albuminuria, and at later stages nephritis, may be present. Eosinophilic inclusions are also seen in the epithelial cells of renal pelvis (bladder, lung, etc.).

Pyometra, metritis, prostatitis, cystitis, respiratory infections. In this group of diseases it is possible to encounter nephrosis, infarcts, or, according to some observers (Bloom, 1954; Rehfeld 1954), interstitial nephritis.

Tonsilitis, lymphadenitis, particularly of streptococcal origin. In this category the symptoms may be associated with *febrile* albuminuria (Bloom, 1954) due to some degree of epithelial degeneration, or in some instances nephritis, mostly of the subacute type. Among specific infections Bloom (1954) encountered renal lesions in:—

Tuberculosis. The kidneys may be involved in from 25 to 40 per cent. of tuberculosis cases. The infection in the kidney indicates haematogenous spread.

Contagious canine hepatitis (Rubarth's disease). This virus has been shown to cause interstitial nephritis (" Persistence of virus in urine as a factor in the spread of infectious hepatitis in dogs ") (Poppensiek, 1951). Both nephritis and persistence of virus in the urine of infected dogs have been established. After experimental infection the virus persisted for at least 161 days. Affected kidneys showed focal or diffuse interstitial nephritis, but fibrosis was negligible, and there was no apparent tendency to assume the chronic state. Acute lesions seemed to disappear by ordinary resolution.

Blastomycosis. This disease mostly involves the lungs and skin. Haematogenous dissemination can occur, and secondary lesions in the kidneys may occur occasionally. The causative fungus, *Blastomyces dermatitides*, produces tubercle-like grey to yellow lesions. One such case has been suspected by the writer, but was not proved histologically.

Feline Renal Disorders

Apart from cystitis and mineral deposits in the urethra, and at times in the bladder, the aetiological factors of these diseases are less well-known than for the dog. The presence of leptospiral infection requires further investigation, although there is some evidence that such cases are being encountered (Hemsley, 1955).

In a large group of cats autopsied over a period of years the most commonly affected organ has been the liver. Many specimens of urine obtained from cats suspected of renal disease showed evidence of cystitis.

Tumours

The exact incidence of neoplasia in animals is not known. It has, however, been suggested that about 5 per cent. of dogs examined at the Beaumont Animals' Hospital have had neoplasms (Knight & Douglas, 1943). The figure for those autopsied has been placed at about 10 per cent. Other workers indicate that the incidence and geographical distribution may vary; it is quite possible that in the past too little attention has been paid to the occurrence of renal neoplasia. Broadly speaking, primary renal tumours of small animals are uncommon. There are, however, several reports of such lesions (M'Fadyean, 1931; Mowder, 1940; Wright, 1936; Weitz & McLelland, 1940; Button & Button, 1941; Jones, 1952; Schnelle, 1954; Medway & Nielsen, 1954; Nielsen & Archibald, 1955; Savage & Isa, 1954; Plummer, 1951; Bloom, 1954; Cotchin, 1951, 1952, 1954). Cotchin (1951), in his review of 1,211 neoplasms in dogs, reports 12 cases from the urinary system, and out of 115 feline neoplasia, three from the urinary organs.

In the dog:—

adenocarcinomas	3	primary; in the kidney
adenoma ...	1	,, ,, ,, ,,
epitheliomas ...	4	bladder
fibroleidmyomas	3	,,

In 1954 the same worker reported from 86 miscellaneous tumours of dogs:—

Urinary system	11
Kidney	4
carcinoma	3
lymphosarcoma ...	1
Urinary bladder	6
carcinoma	2
fibroma	2
papilloma	1
leiomyosarcoma ...	1
Urethral adenoma ...	1

From the clinician's point of view one of the most important neoplasms of the dog is " embryonal nephroma " (synonyms—adenomyosarcoma, sarcocarcinoma, adenosarcoma or Wilm's tumour). This is usually a single tumour and mostly occurs in the young. Several reports are available of its surgical removal and lately of the use of radiography in confirming diagnosis. In a number of instances the tumour may be suspected on palpation (Medway & Nielsen, 1954; Nielsen & Archibald, 1955; Schnelle, 1954; Mowder, 1940; Weitz & McLelland, 1940; Button & Button, 1941; Jones, 1952; Savage, 1954). Wright (1936) describes a case of successful nephrectomy for the removal of a tumour in a seven-year-old Airedale; this case is of special interest in that at the time no antibiotics were available.

These reports indicate that, with the present improved technique of diagnosis, a more extensive investigation may reveal a higher incidence of renal neoplasia than has been found in the past.

Part 2 of this paper, together with the discussion which followed it, will be published next week.

FOWL PEST

In the House of Commons on December 6th, Mr. Dye asked the Minister of Agriculture, Fisheries and Food what have been the total numbers of poultry destroyed this year as a result of fowl pest disease; and what is the amount of compensation that has been paid.

MR. AMORY: Outbreaks of fowl pest this year, to November 30th, have involved the slaughter of about 890,000 birds, including 186,000 day-old chicks, and the destruction of 830,000 hatching eggs. Compensation is estimated to amount to £1,000,000.

MR. DYE: In view of the fact that this disease has now been prevalent in this country for nine years and does not seem to be diminishing in any way, is the right hon. Gentleman satisfied that the methods of tackling it are the best?

MR. AMORY: This is a very important question, and every possible consideration and weight is being attached to its solution. On present evidence, I am quite certain that our present policy of slaughter and compensation is the right one. The only alternative that I know of at present, which would be to rely upon vaccination, would be far more expensive to the industry and, on present evidence, very much less effective.

GLAXO LABORATORIES NEW DEPARTMENT

The new Biological Department of Glaxo Laboratories at Greenford was opened officially on December 5th. Erected at a cost of £400,000 the building provides increased facilities for biological research and production. A section of it is being given over to veterinary research.

Cholecystography and Rupture of the Diaphragm in Small Animals

BY

R. CHURCHILL FROST

Royal Veterinary College and Hospital, London

RADIOGRAPHIC visualisation of the gall-bladder in small animals does not appear to have any wide clinical application, and no doubt it is for this reason that little attention has been paid to the subject so far. However, the fact that the anatomical position of the gall-bladder can be very well shown radiographically may not be entirely without clinical use and one such use can be as an aid to the diagnosis of ruptured diaphragm.

As the result of trauma, ruptured diaphragm in the cat and dog is not uncommon, but positive diagnosis is not always readily made either by clinical examination, or even by the best quality radiographs.

Displacement of the gall-bladder, ordinarily to the right of the mid line at a level of about the 9th and 10th ribs, will depend very largely on the site and extent of the rupture. Hence, cholecystography may well be an aid to confirmation of a diagnosis of ruptured diaphragm and can be used where other methods leave diagnosis in doubt.

A substance which has been found most suited to the requirements is phenobutiodil*, which is chemically 1 (2:4:6-triodophenoxy)-butyric acid, has a molecular weight of 557.9 and an iodine content of 68.2 per cent. Phenobutiodil has the great advantage of oral administration in tablet form, and not only produces radio opacity of the gall-bladder but may also advantageously visualise parts of the alimentary tract. No special preparation of the patient need be undertaken prior to administration of the drug, but food and water must be withheld between dosage and radiography.

Before administering phenobutiodil it is, of course, desirable to have a radiograph of the chest in the lateral plane as this radiograph alone may provide sufficient confirmation of ruptured diaphragm.

Technique

The calculated number of tablets is administered by mouth. This has been found to be at the rate of one tablet (0.5 g.) per 3 lb. bodyweight in cats and dogs weighing up to 15 lb.

In all cases in cats and small dogs the gall-bladder was visible, and best seen at 13 hours after administration. This has been found to be the optimum time with the simple, practical method of dosing the patient at 10 p.m. and withholding food and liquid until radiography at 11 a.m. the next day. The only noticeable effect of the phenobutiodil on the patients at any time was the production of emesis. This happened during the night after administration and appeared of no consequence. So far, visualisation at the rate of 0.1 g. per 1 lb. bodyweight in large dogs has not been good, but was sufficient in one case weighing 50 lb. to negate any gall-bladder displacement.

* "Biliodyl" (May & Baker).

Plate I

This is a lateral radiograph of a cat which weighed 8½ lb. and received three tablets 13 hours before exposure at 58 kV, 250 mA, 0.15 seconds. The focus film distance was 36 inches, with a stationary Lysholm grid placed in the casette and using Kodak Blue Brand film. The gall-bladder can be seen superimposed on the 10th and 9th ribs and apparently in normal position within the liver substance. Some radio opacity is also visible in the intestines. Radiographs very similar to this have been obtained in other patients when there is no gall-bladder displacement associated with a ruptured diaphragm.

Plate II

This is a lateral radiograph of a dog weighing 12 lb. which was dosed with four and a half tablets 13 hours before exposure at 61 kV, 250 mA, 0.2 seconds. The focus film distance was 36 inches with a stationary Lysholm grid using Ilford Red Seal film. The gall-bladder can be seen displaced dorsally, but not anteriorly, indicating that the left diaphragm was ruptured. This was confirmed at surgery when the left lobes of the liver, together with the omentum, small intestine, and part of the stomach, were found within the thorax. With a right diaphragmatic rupture one would expect the gall-bladder to be displaced more anteriorly.

Plate III

This is a dorso-ventral radiograph of the same patient as in Plate II, and was exposed at 65 kV, the other factors being the same. This clearly shows the gall-bladder to be on the right side and not displaced in the antero-posterior plane. This plate, in association with the lateral, enabled a correct diagnosis of left diaphragmatic rupture to be made.

Comments

Phenobutiodil has proved safe and useful but it is contra-indicated in acute nephritis, acute gastro-intestinal disorder, and possibly jaundice.

Summary

A technique of cholecystography in small dogs and cats is described and the value of the method in the diagnosis of ruptured diaphragm indicated.

Acknowledgments.—I am grateful to Mr. G. C. Knight, F.R.C.V.S., for helpful advice and encouragement, and to Miss E. M. Harrod for the radiographs.

PLATE I.—Radiograph of a cat showing the gall bladder in normal position.

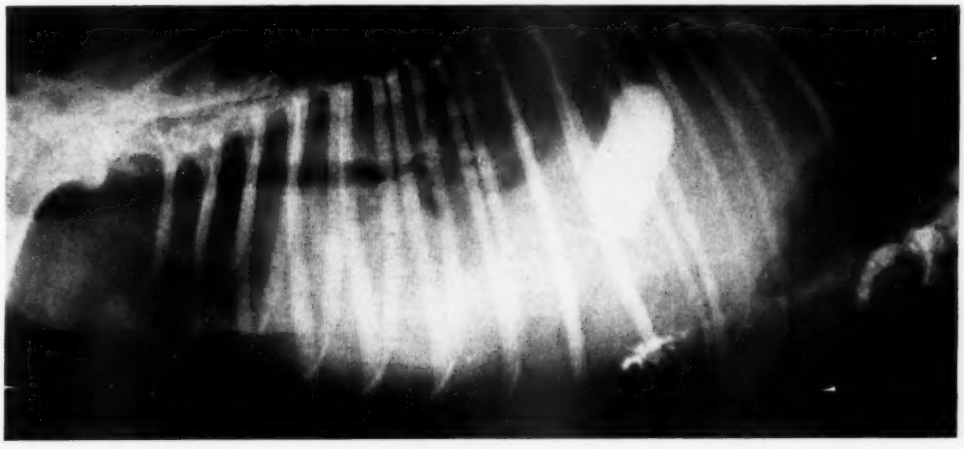

PLATE II.—Lateral radiograph of a dog showing a displaced gall bladder caused by a ruptured diaphragm.

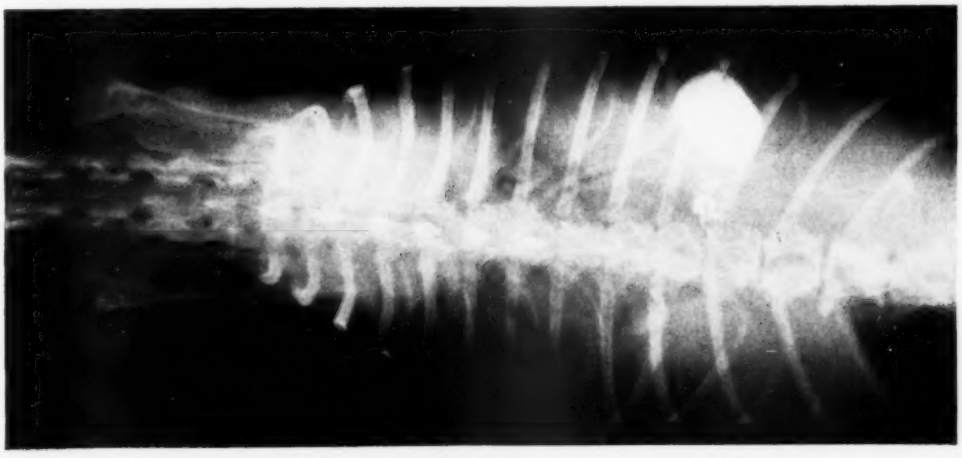

PLATE III.—Dorso-Ventral radiograph of the same dog as in plate II.

The Fertility of Bovine Semen Collected by Electro-ejaculation

BY

V. J. A. MANTON

Cambridge and District Cattle Breeders Ltd., Huntingdon Road, Cambridge

THERE is surprisingly little reference in the literature to any large numbers of inseminations carried out with semen obtained electrically from the bull, and it was thought that the figures below might help to remedy that deficiency.

Two bulls at the Cambridge A.I. Centre have been collected from using this method to a large extent, but during their stay at this Centre they have also had opportunity to produce semen by normal collection methods. The method of electrical collection used in both cases was a modification of the Thibault apparatus described by L. E. Rowson and M. I. Murdoch (1954).

The first of these bulls was a Hereford, six years old, which damaged its right hip joint during a normal collection in November, 1953. Arthritis supervened, and the condition became steadily worse until the bull was slaughtered on November 30th, 1955. After injury it was unable to mount the cow normally, and even had some difficulty in rising from the recumbent position. In fact, during the latter months the hip could quite easily be heard " cracking " on the slightest movement. The semen, however, was distributed in the normal way for inseminations at the main centre and the four attached sub-centres.

The results of inseminations carried out during and just prior to lameness are summarised in Table I.

The second bull was a Dairy Shorthorn, aged 15 years, which although perfectly sound, refused to mount after a series of normal collections. It was then that electrical collection was resorted to. The figures for this bull are given in Table II.

TABLE I

NORMAL COLLECTIONS

April 1953—November 1953

	Number of 1st Inseмins.		Number holding at 3 months	C.R.
				per cent.
Main-centre	511	—	304	59
Sub-centre A	170	—	116	68
Sub-centre B	111	—	87	78
Sub-centre C	131	—	95	73
Sub-centre D	295	—	192	65
Main Centre	511	—	304	59
Sub-centres	707	—	490	69
TOTAL	1,218	—	794	65

ELECTRICAL COLLECTIONS

December 1953—September 1955

	Number of 1st Insemins.		Number holding at 3 months	C.R.
				per cent.
Main Centre	1,061	—	736	69
Sub-centre A	388	—	267	69
Sub-centre B	444	—	343	80
Sub-centre C	312	—	199	64
Sub-centre D	718	—	445	62
Main Centre	1,061	—	736	69
Sub-centres	1,862	—	1,254	67
TOTAL	2,923	—	1,990	68

TABLE II

NORMAL COLLECTIONS

September 1955—November 1955

	Number of 1st Insemins.		Number holding at 3 months	C.R.
				per cent.
All Centres	220	—	140	64

ELECTRICAL COLLECTIONS

January 1955—August 1955

	Number of 1st Insemins.		Number holding at 3 months	C.R.
				per cent.
All Centres	789	—	547	69

To give a better comparison of the fertility obtained by using semen collected by electro-ejaculation as against that produced by normal methods, all the inseminations have been totalled to give Table III.

TABLE III

NORMAL COLLECTION				ELECTRICAL COLLECTION			
Number of 1st Insemins.		Number holding at 3 months	C.R.	Number of 1st Insemins.		Number holding at 3 months	C.R.
			per cent.				per cent.
1,438	—	934	64	3,712	—	2,537	68

Summary

The above data have been collected because it was felt that the numbers of first inseminations involved were interesting enough to warrant publication. Initially it was felt that, since semen collected electrically resulted, in this case, in an increased conception rate, this might be related to the method of collection. However, statistically the 4 per cent. increase was shown to be, " not significant, but interesting." It was, therefore, decided in view of the adverse criticism of the idea of electro-ejaculation to offer the opinion that in the experience of the Cambridge Cattle Breeding Centre, no deleterious effect on fertility was found when using semen collected by this method.

Reference

ROWSON, L. E., & MURDOCH, M. I. (1954). *Vet. Rec.* **66**, 326.

Agriculture in the British Economy

IN view of the Government's subsequent announcement of long-term agricultural agreements, a conference which opened at Brighton on November 13th was timely in providing a platform for the views of those connected with farming on the part that the industry should play in the British economy. The delegates included not only farmers but also bankers, economists, politicians, and industrialists.

Sir Alexander Fleck, chairman of Imperial Chemical Industries Limited, who sponsored the conference, referred to the need for establishing a solid basis on which policies for each section of the industry could be built. In his opening address, Mr. Stephen Cheveley, chairman of the Central Agricultural Control of I.C.I. gave his opinion of what this basis should be. On the production side he felt that by developing work study, spending more on research, and increasing efficiency, grassland production could be intensified and arable output increased: this would allow the industry to replace imported feeding-stuffs with home-grown, in particular grass. Subsidies should be reduced with the emphasis shifted in the direction of aiding capital improvements to holdings. A greater capital investment in agriculture should be encouraged with more facilities for the farmer who needed medium-term loans.

The papers in the first section were given by Professor E. A. G. Robinson of the Department of Economics, Cambridge, on " Agriculture's place in the British Economy," and Professor E. F. Nash, Department of Agricultural Economy, University College of North Wales, on " The Sources of our Food Supplies." Professor Robinson believed that in 10 years' time we should be spending 15 per cent. more on food than at present, of which 3 per cent. would be a demand for better quality. He did not think we could afford to buy more food from abroad, and to supply this increased demand a 20 per cent. increase in home production would be necessary. Professor Tress of Bristol criticised this view on the grounds that it was made to appear that the market was there for the asking: on the contrary the British farmer would need to win it.

Professor Nash's conclusion was that we needed to expand production in meat (other than pigs) and in home-grown feeding-stuffs, especially grass. We had gone too far in enlarging our output in some directions. Dr. Raeburn of London University reviewed price trends and showed that in mutton and eggs we were in a competitive position. He thought the high subsidy on pigs was uneconomic. Dr. Norman Wright of the Ministry of Agriculture believed we would become more American in our eating habits, thus increasing the emphasis on meat, fruit, and vegetables.

The second part of the conference consisted of papers on arable crops by Sir Peter Greenwell, pigs and poultry by Mr. W. T. Price, Principal of the Harper Adams Institute, milk by Mr. W. R. Trehane, vice-chairman of the Milk Marketing Board, beef and sheep by Mr. F. H. Garner. General Manager of Frederick Hyam Ltd., and on the home feed resources for live-stock by Mr. R. A. Hamilton, the development director of Central Agricultural Control.

Sir Peter Greenwell took the view that intensive arable farming was still necessary since most farmers had not yet reached the point where the law of diminishing returns began to operate. In 10 years' time he estimated that the arable acreage would have been reduced, and yields increased by this intensive farming, resulting in lowered costs. There would be more home-grown feeding-stuffs available and the acreage taken out of arable cropping would be under leys, resulting in increased fertility. Other speakers urged the need for mechanisation and the standardisation of equipment.

Mr. J. N. Ritchie, Chief Veterinary Officer, spoke from the floor on disease control. He said we were fortunate in having brought most of our major diseases under control and must now endeavour to prevent their reintroduction or the introduction of new ones. Import of carcases from countries where such diseases were endemic was a constant source of danger. He foresaw that tuberculosis would be removed in the next 10 years, and with other diseases under control there would be a surplus of dairy heifers allowing greater culling of the poor cow at an earlier stage.

Mr. Hamilton stressed that grass was the best and cheapest food we had, especially if it was grazed. He felt that we were still too half-hearted about our grass and silage campaign and that there was still unlimited scope for making more effective use of the grass we could grow.

In the final section dealing with the ways by which expansion could be achieved, Mr. R. M. Currie, head of the I.C.I. Work Study Department, spoke of how his science could help in increasing production. Every industry in turn had said that work study applied to everyone except themselves, and had then enthusiastically accepted it; the same would happen to agriculture. Dr. O. T. W. Price of Central Agricultural Control spoke on " Capital Needs of British Agriculture." The increased cost of maintenance since pre-war had reduced the amount of capital investment on fixed assets while investment in live-stock, crops, and machinery had increased. This meant that landlords and tenants were now almost equal partners in investment. He estimated that an annual investment in the region of an additional £20,000,000 to £30,000,000 would be needed during the next 10 years to equip the industry for reducing its unit costs.

Mr. Malcolm Messer, Editor of *The Farmers' Weekly*, spoke of Government support. The objective he suggested was to extend production grants steadily and at the same time reduce price supports. Mr. Winegarten of the N.F.U. opposed this view and justified price supports on the grounds that they gave confidence to producers and protected them from world surpluses beyond their control. The general opinion of the conference, however, favoured Mr. Messer's thesis.

The conference proceedings will be published in book form shortly.

News and Comment

ACCOMMODATION FOR THE 1957 CONGRESS

We are asked by Dr. Peter Storie Pugh, honorary secretary to the Provisional Committee for the 1957 Annual Congress, to make the following request:—

Will everyone who expects to attend Congress, and who will require accommodation, please write to Dr. Pugh immediately. A large attendance is anticipated, and it would be of the greatest help to know, even approximately, how many reservations will be called for. Tentative bookings will be acceptable at this early stage, in order to give the organisers a broad idea what to expect. Will readers, therefore, please write to Dr. Pugh at their earliest convenience. The address is, Department of Veterinary Clinical Studies, Madingley Road, Cambridge, and envelopes should please be marked " Accommodation."

CLASSIFIED ADVERTISEMENTS FOR DECEMBER 29th

Owing to Christmas Day falling on a Tuesday this year, all material to be published on the following Saturday has to be set up in type during the previous week. Those who wish to insert classified advertisements, therefore, are asked to ensure that these reach us *not later than the morning of Wednesday, December 19th.* It will not be practicable to include advertisements received after this date until our issue of January 5th, 1957.

NEW RATES FOR CLASSIFIED ADVERTISEMENTS

As from the first issue in the New Year, that of January 5th, Council has approved new rates for classified advertisements in THE VETERINARY RECORD. The increase is regretted, but has been made necessary by the fact that the present rates no longer meet the cost of setting up in type, to say nothing of clerical labour. The rates were fixed many years ago and are now quite out of touch with current costs.

The new rates are:—

For Members: 2s. 6d. for each six words or less, minimum 7s. 6d.; repeat advertisements 1s. 6d. for each six words, minimum 4s. 6d.

Public Bodies, etc.: 3s. 9d. for each six words or less (minimum 18 words); repeat advertisements 2s. 3d. for each six words.

The box number fee remains at 2s. 6d. and should only be paid *once,* irrespective of the number of insertions.

Advertisers would help the clerical staff very much by correctly counting the words in their advertisements and sending in the appropriate fee *plus the box number fee.*

VETERINARY EDUCATION IN THE REPUBLIC OF IRELAND

Two recently issued Statutory Instruments made under the Veterinary Surgeons Act, 1948, are interesting as showing the special relationship between the Republic of Ireland and the United Kingdom.

Section 20 of the Veterinary Surgeons Act, 1948, empowered the Privy Council, on the recommendation of the Council of the Royal College of Veterinary Surgeons, by order, to direct that the holder of a veterinary degree of any university in the Republic of Ireland which qualified the holder for registration in the Republic should entitle the holder also to registration in the United Kingdom Register of Veterinary Surgeons, and thereby to be a member of the Royal College of Veterinary Surgeons.

A treaty arising out of this provision and other provisions was signed between the Governments of the United Kingdom and of the Republic on April 6th, 1954. The provisions of this would have the same effect as has already occurred in the United Kingdom of bringing veterinary education in the Republic within the scope of the Universities and terminating the one portal system of the M.R.C.V.S. Diploma. Negotiations have been proceeding during the past two years, and have resulted in two Privy Council Orders, which will make the veterinary degree of the University of Dublin, Trinity College, and the veterinary degree of the National University of Ireland registrable in the United Kingdom Register of Veterinary Surgeons on and after the first day of 1957. This date is understood to have been selected in order to enable the changeover to be satisfactorily accomplished. The teaching staff at the Veterinary College of Ireland has been, and is being increased, and a field station has been provided by the Government of the Republic. The position regarding the Veterinary College of Ireland is unique, for it will, in effect, be shared between the two Universities. In other words, the students will be able to read for the veterinary degree of whichever University they are entered for.

The Treaty contains provisions that will enable the Council of the Royal College of Veterinary Surgeons from time to time to make a Visitation of the two Irish universities, exactly in the same way as it does the universities in the United Kingdom. There is, however, under the Treaty a slight difference inasmuch as the Veterinary Council of the Republic will also be concerned in the matter, as it has responsibilities for maintaining the standards of veterinary education in Ireland.

IRISH VETERINARY COUNCIL DINNER

It was a happy coincidence that both the two Statutory Instruments, to which reference is made above, regarding the veterinary degrees of Irish universities, should have been published just before the very successful dinner given by the Veterinary

Council of the Republic of Ireland, on Wednesday, November 28th, at Newman House in the National University of Ireland.

The President of the Irish Veterinary Council, Mr. John Flynn, who is also a member of the Council of the Royal College of Veterinary Surgeons, was in the chair, and among the guests of the Council were the Minister for Local Government, Mr. O'Donnell, in the unavoidable absence of Mr. Dillon, the Minister for Agriculture, who was engaged that evening in the Dail. The Department of Agriculture was represented by the Permanent Secretary, Mr. J. Dempsey, and Mr. J. C. Nagle, the Deputy Secretary, who is well known at International committees dealing with veterinary matters. With them was Mr. P. A. Rogan, the Director of Veterinary Services for the Republic. Another guest who, in most witty terms, replied to the toast of the guests proposed by Mr. M. Gallagher, Honorary Secretary of the Irish Veterinary Medical Association, was the Lord Mayor of Dublin, Alderman Briscoe, who has made history as being the first member of the Jewish faith to be elected to this office. Also present were the President of the Royal College of Physicians of Ireland and the President of the Royal College of Surgeons, Dublin.

The Minister, in proposing the toast of the veterinary profession, stated how gratified everyone present would be to know that in the United Kingdom the Privy Council had made the appropriate Orders giving recognition to Irish veterinary degrees so as to enable Irish graduates to practise in the United Kingdom. He and all the other speakers expressed their warm gratitude to Mr. Sumner, the immediate past-President of the Royal College of Veterinary Surgeons, who unfortunately was not able to be present, and to Mr. Oates, the Registrar, who was one of the guests present that night, for their skilful handling of the delicate negotiations over the past years, which had resulted in the making of the Orders.

The Minister's speech was replied to by Professor Mullaney, who is both a member of the Irish Veterinary Council, as well as of the Council of the Royal College of Veterinary Surgeons, who reminded those present and the greater public outside of the importance of the veterinary profession to Ireland, a predominantly agricultural country with large animal exports.

THE REGISTER OF VETERINARY SURGEONS

The names of the following have been removed from the Registers maintained by the Royal College:—

Register of Veterinary Surgeons

Andrewes, Francis Nesfield; Burgess, John William; Duckett, Arthur Lockwood; Forrest, Robert Johnston; Lawson, R. Mackay; Lowe, Herbert John; Merlen, Rene Henry Albert; O'Connor, Michael Anthony; Strachan, Miss Isobel Cecilia; Turnbull, John Edwin.

Supplementary Veterinary Register

Dredge, Herbert William.

THE R.C.V.S. LIBRARY

We are advised by the librarian that, in view of the Christmas postal difficulties, no parcels will be despatched from the Library during the week commencing December 17th unless the books are urgently required and a special request is sent in. Readers are also requested to note that whilst the Library will be open as usual up to December 21st, it will be closed on December 24th and will not re-open until December 27th.

THE J. T. EDWARDS MEMORIAL FUND

Final List of Subscriptions Received

	£	s.	d.
As published previously	617	0	6
J. B. White, M.R.C.V.S., Salisbury	1	1	0
J. A. Flynn, M.R.C.V.S., Dublin	1	1	0
Pharmaceutical Specialities (May & Baker) Ltd., Dagenham	26	5	0
W. Gimber & Son Ltd., Peckham	2	2	0
J. M. F. Edwards, Esq., St. John's Wood ...	2	2	0
Brig. A. G. Ralston, M.P.C.V.S., Droitwich ..	2	2	0
H. E. Roberts, M.R.C.V.S., Wolverhampton ...	10	10	0
G. Edwards, London	2	2	0
F. Jenkins and D. C. Davies, Llanelly	2	2	0
Society of Practising Veterinary Surgeons ...	10	10	0
N. Dobson, M.R.C.V.S., Weybridge	2	2	0
O. V. Gunning, M.R.C.V.S., Norwich	1	1	0
Burroughs, Wellcome & Co., Beckenham ...	52	10	0
Capt. J. E. Jelbart, M.R.C.V.S., Heathfield ...	1	1	0
T. L. A. Chagan, M.R.C.V.S., Llangaddock ...	2	2	0
D. H. Thomas, M.R.C.V.S., Whitland	1	1	0
E. Brayley Reynolds, O.B.E., M.R.C.V.S., Newmarket	25	0	0
Major G. Williamson, O.B.E., M.R.C.V.S., D.V.S.M., Nigeria	10	0	0
Lancashire Veterinary Association	10	0	0
Eastern Counties Veterinary Society (First Payment under seven-year Covenant)	5	5	0
11 Members of Tanganyika Territory Division (per the Estate of the late A. H. Milne, M.R.C.V.S.)	25	0	0
	£811	19	6

It is proposed now to close the list, and to make arrangements for the use of the Fund.

PROFESSOR BONADONNA

Members of the profession who attend international conferences or, in other ways, are in contact with European colleagues, will learn with pleasure of the appointment of Professor Bonadonna to the Chair of Zootechnics in the Faculty of Agricultural Science, University of Milan.

MR. G. P. MALE

Mr. H. Scott Dunn writes:—

I take this opportunity of paying tribute to the "Guv'nor," as he was known to his staff and to many others. Following the death of the late Mr. Albert Wheatley it was my privilege to be senior assistant to G. P. for 17 years. Probably outside his family circle, I might claim to have known him better than most people. In addition to being an astute man of business he had a unique knowledge of all shades of veterinary practice, having learned much from the late Professor Macqueen. A fine horseman, he competed in many show-jumping events

and was also a keen point-to-point rider. His work for the R.C.V.S., the N.V.M.A., the Royal Veterinary College, and the Royal Counties Division are best known to those who were associated with him. For several years he was chairman of the Windsor Dog Show.

He was proud to have received the O.B.E. at the hands of the Duke of Gloucester, a personal client. As a noted judge of horses he had adjudicated at many events and had hunted with many packs of hounds. He was honorary veterinary surgeon to many shows and his services were always in demand.

A kind, generous man, he had helped people all his life, and many both from within the profession and from outside will miss him greatly and extend their deep sympathy to his wife and son.

★

About 300 mourners attended the funeral. The Association was represented by Mr. J. M. Ingram, junior vice-President, and the R.C.V.S. was represented by the President, Professor L. P. Pugh, and the Registrar, Mr. W. G. R. Oates. Other bodies and organisations whose representatives were present included the Ministry of Agriculture, the Royal Counties Division of the B.V.A., Reading University, and the South Berks and Garth hunts.

MR. H. H. TRUMAN, J.P.

We record with regret the death of Mr. H. H. Truman, J.P., M.R.C.V.S., at the age of 87. He died at his home in March, Cambridgeshire, on December 2nd.

Known familiarly as "H.H.," Mr. Truman was especially well known to an earlier generation as a leading judge of the heavy horse and was himself a breeder and exhibitor.

His professional life extended over a period of 48 years until he retired in 1944. He qualified in London in 1892. His family name has been prominently associated with breeding, exhibiting, and exporting of heavy horses since the latter part of the last century. It began when his father left his fen home at Whittlesey for the United States to found Truman's Pioneer Stud Farm at Bushnell, Illinois. From industrial Britain, and from France and Belgium, he imported horses, and shipped back fat cattle for the English market. Later he was joined by his sons, and over the years a large number of first-class stallions, mares, and geldings emerged from the stud.

Mr. Truman made several visits to the U.S.A. and became continental buyer of pedigree Percheron and Belgian horses for the Illinois stud farm. In 1925 he was awarded the Croix de Chevalier Mérite Agricole by the French Government for services rendered to agriculture in that country.

In 1912 he was invited by the International Horse Society to exhibit representatives of the Percheron breed at Olympia, and he judged the breed at many shows, including the Royal.

He commenced practice in 1896 at March and Chatteris, and was appointed veterinary inspector for the Ministry of Agriculture, and the Cambridgeshire and Isle of Ely County Councils. He was made an Honorary Associate of the then Lincs. and District Veterinary Medical Association in 1944.

Mr. Truman was a magistrate for 32 years, a local councillor for many years, and was the first chairman of the March branch of the N.F.U. He is survived by his wife and two daughters to whom our sincere sympathy is expressed. The funeral service was held at St. Peter's, March, on December 6th.

Mr. R. W. A. WATCHORN

D. C. and R. F. write:—

His many friends and colleagues in the profession will learn with profound regret of the sudden death on December 7th, 1956, in a Cambridge nursing home, of Mr. Richard William Ambler Watchorn, M.R.C.V.S., D.V.S.M., of 14, Wingate Way, Trumpington, Cambridge. He was 57 years of age.

Prior to qualifying in London in 1921, he served with distinction in the R.F.C. in the First World War. After a period in his father's practice in Newtown, Montgomeryshire, he joined the staff of the Ministry of Agriculture as a Veterinary Officer. In the earlier part of his career he was stationed at Grimsby, but in 1934 he was promoted to Divisional Veterinary Officer and took up his abode in Cambridge where he has given of his best to the community for the past 20-odd years.

He was keenly interested in his profession and was a regular attendant at the Eastern Counties B.V.A. meetings and other associated functions.

Of a quiet, unassuming disposition he was at all times courteous, kind and respected by all with whom he came in contact, and not least by his own staff who knew him best.

To his friends who came to his home there was always a warm welcome; and the deepest sympathy must go out to his devoted wife and two sons in their grievous loss.

PERSONAL

Births

BAXTER.—On November 29th, 1956, to Muriel (*née* Knox) wife of J. S. Baxter, M.R.C.V.S., 88, Earlswood Road, Belfast, a daughter.

BEAUMONT.—On December 8th, 1956, to Beryl, wife of Wilfred Beaumont, M.R.C.V.S., of White Cottage, Totnes, a son, Keith.

GARRETT.—On December 7th, 1956, to Pamela, wife of J. A. Garrett, M.R.C.V.S., 22, Church Street, Crewkerne, a daughter, Jill, a sister for Jinnie.

R.C.V.S. OBITUARY

ROBERTSON, Edward George, D.V.S.M. Graduated Liverpool, December 19th, 1923. Died in hospital at Salisbury, Hants, November 27th, 1956, aged 59 years.

WATCHORN, Richard William Ambler, D.V.S.M. (VICT.), Divisional Veterinary Officer, Ministry of Agriculture, Government Buildings, Brooklands Avenue, Cambridge. Graduated London, July 13th, 1921. Died December 7th, 1956, aged 57 years.

COMING EVENTS

December

19th (Wed.). Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 5 p.m.

20th (Thurs.). Annual Dance of the V.V.B.F. Ladies' Guild, Dumfries Division, in the Cairndale Hotel, Dumfries.

Ordinary General Meeting of the South-Eastern Veterinary Association at the Royal Star Hotel, Maidstone, 2.30 p.m.

January

3rd (Thurs.). Meeting of the Supplementary Veterinary Register Division at 7, Mansfield Street, London, W.1, 2 p.m.

7th (Mon.). 18th Ordinary General Meeting of the A.V.T. & R.W's. at the Animal Diseases Research Association, Moredun Institute, Gilmerton, Edinburgh, 9, 10 a.m.

24th (Thurs.). Annual Dinner and Dance of the V.V.B.F. (Northern Division) in the Northern Hotel, Aberdeen, 7.30 p.m.

BRITISH VETERINARY ASSOCIATION QUARTERLY MEETINGS

Wednesday, January 23rd, 1957, at 7, Mansfield Street, W.1.

10.00 a.m. Parliamentary and Public Relations Committee.
11.30 a.m. Veterinary State Medicine Committee.
2.00 p.m. Small-Animals Committee.

Thursday, January 24th, 1957, at 7, Mansfield Street, W.1.

10.00 a.m. Farm Live-stock Committee.
11.30 a.m. Home Appointments Committee.
12.30 p.m. Finance Sub-committee.
2.30 p.m. General Purposes and Finance Committee.

Friday, January 25th, 1957, Connaught Rooms, Great Queen Street, W.C.2.

10.30 a.m. Extraordinary General Meeting followed by Council Meeting.

FOOT-AND-MOUTH DISEASE

The area described in the schedule below is declared to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease:—

IN THE COUNTY OF KENT

The Boroughs of Royal Tunbridge Wells and Tenterden.

The Petty Sessional Division of Cranbrook and Tenterden.

In the Petty Sessional Division of Ashford: The parishes of Smarden and Wittersham.

In the Petty Sessional Division of Malling: The parishes of Hunton and Yalding.

In the Petty Sessional Division of Bearsted: The parishes of Linton, Loose, Boughton Monchelsea, Chart Sutton, Sutton Valence, East Sutton, Ulcombe, Headcorn, and Boughton Malherbe and so much of the parish of Lenham as lies to the south of the main road (A.20) running from Maidstone to Ashford excluding the said road.

In the Petty Sessional Division of Tonbridge: The parishes of Capel, Pembury, Paddock Wood, Lamberhurst, and Brenchley.

IN THE COUNTY OF EAST SUSSEX

In the Petty Sessional Division of Frant: The parish of Wadhurst and so much of the parish of Frant as lies to the east of the main road (A.267) running from Tunbridge Wells to Mark Cross including the said road.

In the Petty Sessional Division of Burwash: The parishes of Ticehurst, Etchingham, Hurst Green, Salehurst, and Bodiam and so much of the parish of Burwash as lies to the north and east of the road running from Heathfield *via* Burwash Weald to Brightling excluding the said road.

In the Petty Sessional Division of Battle: The parishes of Ewhurst, Sedlescombe, Whatlington, and Mountfield and so much of the parish of Brightling as lies to the north and east of the road running from Burwash Weald *via* Brightling to Netherfield excluding the said road.

In the Petty Sessional Division of Rye County: The parishes of Beckley and Northiam.

The Foot-and-Mouth Disease Infected Area around Billericay, Essex, was contracted to the following area on December 14th:—

The County Borough of Southend-on-Sea.

IN THE COUNTY OF ESSEX

The Borough of Maldon.

The Petty Sessional Divisions of Rochford and Billericay.

In the Petty Sessional Division of Dengie and Maldon: The parishes of Bradwell-on-Sea, Tillingham, Dengie, Southminster, Burnham, Asheldham, St. Lawrence, Steeple, Mayland, Althorne, Latchingdon, Mundon, Purleigh, Cold Norton, North Fambridge, Stow Maries, Hazeleigh, Woodham Mortimer, and Woodham Walter.

In the Petty Sessional Division of Chelmsford: The parishes of Ingatestone and Fryerning, Margaretting, Stock, West Hanningfield, East Hanningfield, Rettendon, and Woodham Ferrers and so much of the parishes of South Hanningfield and Runwell as lie within the Petty Sessional Division.

In the Petty Sessional Division of Brentwood: The parish of Mountnessing and so much of the parish of Brentwood as lies to the east of the road running from Ingatestone *via* Brentwood to Orsett including the said road.

The area described in the schedule below shall cease to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease as from December 21st:—

IN THE COUNTY OF WORCESTER

In the Petty Sessional Division of Stourport: The parishes of Astley and Shrawley.

In the Petty Sessional Division of Worcester: The parishes of Ombersley, Holt, Grimley, Wichenford, Kenswick, Hallow, Doddenham, Broadwas, and Broadheath.

In the Petty Sessional Division of Hundred House: The parishes of Pensax, Stockton-on-Teme, Abberley, Stanford with Orleton, Shelsley Kings, Great Witley, Hillhampton, Shelsley Walsh, Shelsley Beauchamp, Little Witley, Clifton upon Teme, and Martley and so much of the parish of Rock as lies to the south of the road running from Pensax *via* Rock, Bliss Gate and Heightington to Dunley including the said road.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Dumfries. McWhaunick, Holywood (Dec. 8).

Leics. Church Farm, Barlestone, Nuneaton (Dec. 3); Old Grove Farm, Lydiate, Liverpool (Dec. 6).

Salop. Rodington House Farm, Rodington, Shrewsbury (Nov. 30).

Sussex. The Lock Estate, Partridge Green, Horsham (Nov. 30).

Warwicks. Hall End Farm, Dordon (Dec. 5).

Fowl Pest

Essex. Mill Farm, Mill Road, Mile End, Colchester (Dec. 3); 10, Marine Terrace, Wennington, Rainham (Dec. 7); 3, Laundry Terrace, Wennington, and 7, Laundry Terrace, Wennington, Rainham (Dec. 9).

Lancs. Proctor House, Woodplumpton; Moss Side Farm, Sollom, Tarleton; Ambrose Hall Farm, Woodplumpton; Danson Hill Farm, Woodplumpton; Bamford Farm, Grange Lane, Hutton; The Catforth Hall Section of Poultry Farm, Catforth (Dec. 1); Briar Bank, Holyles Lane, Lea; The Haven, High Barn Lane, New Longton; Henkinson House Farm, Eaves, Woodplumpton (Dec. 2); Brookfold Farm, Leyland Lane, Leyland; Rawcliffe Hall Farm, Out Rawcliffe; Moorside Farm, Woodplumpton; Raikes Farm, Catforth, Glenville, Garstang Road, Barton; Moss View Farm, Moss Lane, Little Hoole; Slip Inn Farm, Inskip; Stotts Farm, Higher Bartle; Almonds Farm, Whittingham Lane, Broughton; Brookfield, Skip Lane, Hutton; Benson Cottage, Eaves, Woodplumpton; Chestnut Bank, Eaves; Gravelly Hill Farm, Eaves, Woodplumpton; Stainsfield, High Barn Lane, New Longton; Brooklands, Skip Lane, Hutton (Dec. 4); Nook Farm, Eaves; 35, Moor Road, Croston; Moss Cottage, Skip Lane, Hutton; Withy Tree Farm, Inskip; Burscough House Farm, Leyland Lane, Leyland; The Poultry Farm, Catforth (Dec. 5); Ripon Hall Farm, Catterall; Crab Tree Farm, Inskip; Kendall Villa, Sheep Hill Lane, New Longton; Blackpole Farm, Lewth Lane, Woodplumpton; Stanley Farm, Skip Lane, Hutton; The Nook, Churchtown, Garstang; Cross House, Myerscough; Barton House, Blackleach Lane, Catforth (Dec. 6); The Glen, Haighton, Grimsargh; Ribble View, Townley Lane, Penwortham; Scutthouse Farm, Carleton Crossing, Blackpool; Wrain How Mount, Woodplumpton; Heatherfield Farm, Moss Lane, Little Hoole; Mill Bank, Inskip; Lewth Farm, Woodplumpton; New Ryscar Farm, Carleton, Blackpool; Mavor Farm, Grange Lane, Hutton; Catforth Hall Farm, Catforth; South View, Miller Lane, Cottam (Dec. 7); Salisbury House, Miller Lane, Cottam; Lewth Hall, Woodplumpton; Hoole Fold Farm, Barton; Godson House Farm, Catforth; Lewth Cottage, Lewth, Woodplumpton; Fencefoot Farm, Barton (Dec. 8); Ashgrove, Oak Tree Avenue, Ingol; Southview, Bay Horse Lane, Catforth; Shepherds Farm, Myerscough, Barton; Holly Oben, Beck Farm, Gt. Eccleston; Turnacre House Farm, St. Michaels; Cockerton Farm, Skip Lane, Hutton (Dec. 9).

Suffolk. The Cock Inn, Clare; 6, Callis Street, Clare Sudbury (Dec. 1).

Yorks. Topcliffe Farm, Tingley, Wakefield (Dec. 5).

Swine Fever

Berks. Boundary Farm, Whitchurch Hill, Goring Heath, Reading (Dec. 10).

Ches. Grange Farm, Bramhall, Stockport (Dec. 3).

Hants. Downham Farm, Egbury, St. Mary Bourne, Andover (Dec. 7).

Lancs. Katoomba, Bells Lane, Lydiate, Liverpool (Dec. 7).

Norfolk. Church Farm, Ingham, Norwich; Brick Kiln Farm, Suffield, Norwich (Dec. 10).

Oxon. Pack Horse Farm, Mapledurham (Dec. 10).

Staffs. Home Farm, Walsall Road, Great Wyrley, Walsall (Dec. 3); Pear Tree Farm, Freehay, Cheadle, Stoke-on-Trent; 39, New Street, Bridgtown, Cannock (Dec. 5).

Somerset. Oakfield Barton, Wembdon, Bridgwater; Ryelands Farm, Wellington (Dec. 6).

Wilts. Forest Springs, New Road, Langford, Salisbury (Dec. 10).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Bloat

Sir,—I was interested to read the article on "Traumatic Reticulitis and Bloat in Cattle" by Eric I. Williams (*Vet. Rec.* **68.** 835). At least in some cases of bloat I feel that death may be due to the absorption of toxic substances from the rumen. I happened to make a call at a farm recently, for some other purpose, just after the cowman had noticed an in-calf Ayrshire cow in acute distress with a moderate degree of distension of the rumen. She had been strip grazing kale one and a half hours previously. As there seemed to be no immediate danger from the ruminal distension, I began to make a complete examination. Within a few seconds the cow became more distressed and groaned almost continuously. She went down, and died in about 30 seconds. Ruminal puncture was made just before death and only gas escaped.

A *post-mortem* examination failed to reveal any abnormality other than that attributable to the bloat.

I feel that the moderate degree of tympany in this case could not have caused death by interference with respiration and circulation but some other factor must have been involved.

Yours faithfully,

B. N. PYKE.

Glovers Close,
Chipping Norton,
Oxon.

December 3rd, 1956.

The R.C.V.S. Annual Fee

Sir,—We shall shortly have the pleasure, or otherwise, of remitting our subscriptions to the R.C.V.S. and the B.V.A. Regarding the latter the subscription would appear to be justified in that we receive a considerable volume of literature, and the secretary is helpful in dealing with problems communicated to him.

The R.C.V.S. subscription would appear to confer few privileges apart from the fact that we cannot practice without paying it. Now that most of the examination duties of the College are ended it is difficult to find justification for this heavy annual

fee. We do, it is true, receive the Register, which is useful in tracing old friends; but communications are side-tracked as not being within the province of the College.

We are now asked by the Royal College to restrict to a minimum our use of petrol in spite of the price increase and of rationing. As for the former, the actual increased cost to the oil companies for Cape shipping is 1½d. per gallon; and for the latter, I have received 40 per cent. of my requirements from the Regional Petroleum Officer.

It would be heartening, in these circumstances, to have an immediate reduction in the annual fee of the Royal College.

Yours faithfully,

J. A. TOOVEY.

Church House,
St. Neots,
Hunts.

December 9th, 1956.

Antibiotic Sensitivity Tests and Mastitis

Sir,—A recent innovation in the routine examination of milk samples is the testing, for antibiotic sensitivity, of micro-organisms isolated. I look forward to seeing the results of such work being published in a comprehensive paper, but the information gleaned from a few cases of mastitis seen in general practice this summer may be of interest. All the milk samples were examined by the staff of the Veterinary Investigation Centre, Worcester, to whom I am most grateful. Thirty-one quarter samples were taken from 27 unselected cows at the first visit. Of these, 19 were sterile on culture, 14 having been previously treated—in 11 cases with penicillin. The results for the 12 positive cases are shown in the Table.

TABLE

MICRO-ORGANISMS ISOLATED FROM SAMPLES OF MASTITIS MILK COLLECTED AT THE FIRST VISIT AND THEIR SENSITIVITY TO ANTIBIOTICS

	Number of quarters sampled	Antibiotics tested			
		Penicillin	Streptomycin	Oxytetracycline	Chloramphenicol
Str. agalactiae	3	++++ ++++ ++	++++ + ++++	++++ ++++ +	++++ ++++ +
Str. dysgalactiae	3	++++ ++++ •+++	++++ ++ ++	++++ ++++ ++++	++++ ++++ ++++
Str. dysgalactiae with *Str. uberis*	1	— —	— —	++ ++	++ ++
Str. uberis with *Haemolytic staphylococcus* ...	1	•+++ •—	++ +	++++ +++	++++ +++
β-haemolytic staphylococcus	2	— ++++	++++ ++	++++ ++	++++ +
Coliforms	2	•— —	++ +	++ ++	++++ ++
Negative	19 (15 cows)				
Total	31 (27 cows)				

* Previous treatment (penicillin).

The varying response of one species to the same antibiotic will be noted. Penicillin resistance was shown by two of the four organisms isolated from quarters previously treated with penicillin. I cannot compare these results with the clinical response obtained after treatment, because usually a combination of antibiotics was used, frequently including chlortetracycline*. Unfortunately, this antibiotic was not tested, and it would be unwise to assume that chlortetracycline and oxytetracycline† have the same spectrum. The coliforms examined were sensitive to both oxytetracycline and chloramphenicol‡, but it would be interesting to know how often this is so. I tend to use a combination of chlortetracycline and chloramphenicol in severe cases of mastitis, in the belief that coliforms might resist the former, but I wonder if this is justified. The results of a large number of examinations might reveal the ideal routine treatment; I hope a combination of antagonistic antibiotics will not be indicated!

Interesting studies which are worth describing in some detail were provided by two cows. An untreated sample from a cow with acute febrile mastitis proved sterile on culture, despite numerous cocci being seen in smears. Some response was shown to chlortetracycline plus chloramphenicol. A following-up sample one week later contained a *Streptococcus agalactiae*, which was only slightly sensitive to oxytetracycline and chloramphenicol, yet very sensitive to streptomycin and penicillin—it would seem the broad spectrum antibiotics are not always preferable to those with a narrow spectrum.

The second case concerns a cow with persistent mastitis. All four quarters had been treated with penicillin before sampling, three with some success. Samples collected were sterile on culture. The left hind quarter failed to show any improvement, despite treatment with penicillin, chlortetracycline, a penicillin with streptomycin mixture§, oxytetracycline with Polymixin B), and chloramphenicol which were

administered over a period of 19 days. Streptomycin was also given parenterally. The cow calved on the 13th day. All four quarters were again sampled on the 19th day; this time one forequarter yielded *Str. dysgalactiae* and the other a penicillin-resistant *Str. agalactiae*. The left hind quarter was now the only quarter clinically affected, and throughout had produced just a cupful of slimy clot each day. As a last resort sulphathiazole intramammary‖ was employed. Twenty-four hours later the quarter yielded a quart of normal milk, and after 48 hours 5 pints! It is unfortunate that sulphonamides cannot be easily included in sensitivity tests. The identity of the causative organism is suggested by the fact that three of the eight other milking cows were carriers of a *Str. uberis* which was not particularly sensitive to any antibiotics. One of these carrier cows had mastitis during the same period, which responded slowly to chloramphenicol, though the untreated secretion proved sterile on culture. Incidentally, four cows were carriers of an organism described as *Str. anginosis*, which was insensitive to oxytetracycline, yet very sensitive to penicillin.

In conclusion, milk sampling is a valuable aid in treating unresponsive quarters, especially where a herd problem may occur, but is of limited value when treatment has already been attempted. It is of much greater value since the introduction of a convenient antibiotic sensitivity test, but a wider range of drugs must be employed.

Yours faithfully,

LIONEL A. HEMSLEY.

c/o 312, Lower Addiscombe Road,
Croydon,
Surrey.

November 18th, 1956.

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* Aureomycin.
† Terramycin.
‡ Dapsetyn.
§ Soxamycin.
‖ Burroughs Wellcome & Co.

Content of "The Veterinary Record"

Sir,—Without in any way wishing to suggest that the views of your correspondents in the "Content of THE VETERINARY RECORD" are prejudiced, it is perhaps a trifle unfortunate that, with the exception of the student readers, they are all, by their own statement, of the category "rejectee."

I am no longer a member of the Editorial Committee, but having had some 14 years' experience in that Committee, two of them as its chairman, I think I may fairly claim to know something of that public-spirited and hard-working band of men and women who act as scrutineers. Mr. Lancaster's assumption that scrutineers are not in practice is quite wrong. Articles with a clinical bias are almost invariably read by members in general practice, *ordinary* practitioners, *busy* practitioners who none the less find time to add this chore to their daily (and nightly) work, and whose only concern is to safeguard the interests of readers of THE RECORD by ensuring that the articles they read are of interest to a fair proportion of these readers, and that they reach a suitable minimum literary standard.

A very small proportion only of the material which comes into the editorial office is rejected, but were some of the tripe and drivel submitted in this small proportion published, not only THE RECORD but the authors would be the laughing stock of the veterinary world. Regrettably, some authors appear unable even to write the most elementary Queen's English.

The great majority of authors appreciate and are most grateful for the efforts of our scrutineers in advising on their articles; most realise the many hours of voluntary work devoted to this task, not always an easy one. Furthermore, far more time and trouble is taken by scrutineers over an article which they may finally feel bound to reject than over one which can readily be approved.

May I suggest, Sir, that for a period of three months, to be chosen by yourself and without previous warning, that you publish everything which is offered you for publication (libellous matter excepted), without scrutiny and without editing? The result might give your critics food for thought.

Yours faithfully,

JOAN O. JOSHUA.

78, Brentway,
Finchley, N.3.

December 9th, 1956.

Sir,—After reading with interest the recent correspondence concerning the content of THE VETERINARY RECORD, I find myself in some sympathy with the writers to date, though I feel that Mr. Lancaster's viewpoint is rather over-critical.

As joint author of an article which was recently refused publication, I had cause to experience the sting of the scrutineers' lash and naturally, when one has given a great deal of thought and time to the preparation of an article, its ultimate refusal is bound to produce a sharply critical reaction, perhaps in some cases with genuine justification. Scrutineers who sit in judgment on their professional colleagues can be just as biased as anyone else and even just as ignorant, but their task is a most difficult one and they deserve a certain sympathy because of this.

It seems to me that two points are relevant; firstly, we all agree that THE VETERINARY RECORD is very much in need of articles of real interest to the clinician; secondly, if THE VETERINARY RECORD is to retain and even improve on its scientific standards, these articles must be more than just chatty case reports. As far as one can see, some critics expect THE RECORD to behave as a sort of "Home Notes" of a clinical nature together with current gossip about members of our profession. This desire to keep in touch with other members of the family is understandable in a profession as small as ours, but we must be very clear in our minds as to whether THE RECORD is to become a type of senior college magazine or a scientific journal of international repute.

There may be a case for division of the publication into a quarterly research issue with intervening issues

concentrating on the type of clinical article with a wider practical appeal to the "backbone of the profession." Additionally, some American veterinary journals have recently introduced the use of sections and thus a small- or large-animal practitioner has a portion of the journal devoted to his interests exclusively. Provided that material of sufficient merit is made available, I think this idea might well be considered. But, after all, it is our journal, and no editor can print or scrutineer accept, even with tongue in cheek, articles which are not sent in. The research worker must "publish or perish," the clinician has no such goad. If those clinicians who write letters of criticism would write articles instead, there would be no criticism.

Finally, Sir, may I say that the recent innovations which I believe you have made, such as the Editorials, News and Comment, University News, In Brief, and coloured covers for Congress, indicate to me that it may not be such a bad thing that in choosing the new editor the B.V.A. paid more heed to experience in journalism and professional writing than academic knowledge of veterinary science. The standard of veterinary skill in this country is second to none. I feel that our journal is, however slowly, beginning to reflect that standard to the world.

Yours faithfully,

G. N. HENDERSON.

22, Strand on the Green,
Chiswick,
London, W.4.

December 11th, 1956.

Record for Friesian Heifer Calf

Sir,—With reference to the report in last week's RECORD, I should like to vouch for the truth of the statement from Mr. F. G. Hitchen, Bettisfield Hall, Farms, Whitchurch, Salop (given as near Oswestry). I saw this calf three days after birth. It was in a pen with another Friesian heifer calf, some seven weeks old, and was much bigger in every respect. It is certainly the biggest calf I have seen in over 30 years of practice, and the fact that it is a heifer calf makes it more remarkable still.

I understand considerable traction was used in delivery; yet the cow showed little signs of distress and appeared quite normal within 48 hours.

Yours faithfully,

R. E. S. TUCKEY.

St. Mary's House,
Whitchurch,
Shropshire.

December 8th, 1956.

Conserving Petrol Supplies

Sir,—I would endorse the letter from the President of the Royal College and add that a considerable saving in petrol would arise if all " representatives " ceased to call on us during the period of petrol rationing. I seldom give an order to travellers, and is it too much to ask all veterinary surgeons to think just that little bit ahead and make use of reply-paid cards as supplied by most firms?

If any of these firms had some genuinely *new* product to offer, the sales representative, who would be off the road, could write a personal letter to the veterinary surgeons upon whom he would be calling if unlimited petrol were available. Whilst this might mean extra work for the postal authorities, this would be more than compensated if certain firms desisted from sending out the same advertisement so often.

Any firm not complying with this simple expedient, in efforts to " get in " because the other fellow was off the road, could be suitably dealt with.

Yours faithfully,

F. D. T. GOOD.

74, Ashford Road,
Tenterden,
Kent.

December 10th, 1956.

Anaesthesia and its Application in Small-animal Practice

Sir,—I was very interested in the letters from Mr. R. A. Brown and Mr. G. L. B. Henderson concerning general anaesthesia in the Greyhound.

From my experience I would suggest that the prime factor is a breed idiosyncrasy to barbiturates rather than shock or physical exertion. Anaesthetisation of a normal Greyhound with thiopentone sodium often results in a recovery period prolonged for as long as 24 hours instead of the usual one hour. Similarly the use of pentobarbitone sodium is followed by a prolonged recovery period of 48 to 72 hours instead of the normal six to eight hours. Following the use of barbiturates, recovery is frequently attended with excessive narcotic excitement.

It would be interesting to hear the views of the specialists as to what constitutes the most effective short-acting general anaesthetic for use in the greyhound.

Yours faithfully,

G. T. WILKINSON.

Orford Place,
Norwich.

December 10th, 1956.

Several interesting letters have had to be held over until next week's issue in view of heavy pressure on our space.

ADVERTISER'S ANNOUNCEMENT

ALLEN & HANBURYS, LTD., announce the introduction of Tinevet. This is a lotion for the treatment of ringworm in cattle, horses, and pigs, containing 0.25 per cent. hexadecamethylene-1:16-bis-isoquinolinium chloride, a new and potent antifungal agent developed in the research laboratories of Allen & Hanburys, Ltd. In addition to its antifungal activity, Tinevet also possesses a high antibacterial activity, an important advantage when treating skin lesions.

The formulation of Tinevet has been evolved to produce maximum penetration and ease of application. To act as a marker, a small percentage of crystal violet has also been included to permit the operator to determine treated areas.